REMARKS

Rejections under 365 U.S.C. §102(a)

The Examiner rejected claims 1-9 and 12-15 as being anticipated by 3GPP TR 23.846 (1/2002), hereinafter TR23846. Applicant incorporates all of the arguments (presented again below) in the Response filed on 22 January 2010.

Regardless, Applicant has amended claims 1, 2, 12, 16, and 17 to further distinguish these claims over the cited reference. Each of the independent claims 1, 12, 16, and 17 has been amended. For instance, claim 1 now recites "setting up said second number of connections between said first switching node and said second switching node, wherein said second number is at least two". Similar subject matter has been added to claims 12, 16, and 17. As discussed in detail below, there will, however, be only a **single** Gn GTP tunnel in TR23846 between the GGSN and the SGSN to support the specific MBMS service. In other words, in TR23846, there could be one, two, or hundred Iu GTP tunnels, but only a single Gn GTP tunnel to support a specific MBMS service. Thus, the added subject matter to independent claims 1, 12, 16, and 17 further distinguishes over the cited reference.

Applicant respectfully submits that all present claims are therefore patentable over TR23846 and requests the rejections to these claims be removed.

Arguments from the Response filed on 22 January 2010

TR23846 does not disclose all elements of Applicant's independent claims. In fact, TR23846 teaches away from the invention and teaches a completely different technique.

The Examiner notes that TR23846 was cited by Applicant and described in Applicant's specification. In Applicant's specification, Applicant describes TR23846 in the following manner (emphasis added):

[0005] **The MBMS is defined e.g. in the 3GPP specifications TS 22.146 and TR 23.846** as a point-to-multipoint bearer service which provides the above capability for broadcast/multicast services. []

[0006] In the known MBMS architecture as defined in the above specifications, a SGSN and a GGSN maintains one or many logical connection(s) in order to route MBMS data to relevant UEs. **The SGSN duplicates data packets received from the GGSN through a single GPRS Tunneling Protocol (GTP) tunnel and forwards the received data packets and duplicated data packets, respectively, via corresponding GTP tunnels to each RNC involved in the provision of a specific MBMS service.** The GGSN duplicates data packets received from the MBMS data source for forwarding to each SGSN to which a GTP tunnel has been established for the specific MBMS service.

[0007] However, **due to the fact that only one GTP tunnel is established between the GGSN and the respective SGSN**, considerable changes are required at the SGSN to provide additional processing power and logic functionality for packet duplication and adaptation of individual logical connection parameters at the SGSN.

In the above text, it is implied that there are potentially **multiple** GTP tunnels from a single SGSN to **multiple** RNCs in TR23846. For instance, the reason the SGSN duplicates data packets is to be able to send the data packets to multiple RNCs (each RNC therefore receiving one of the duplicated sets of packets). However, in TR23846 there is only a **single** GTP tunnel established between the GGSN an SGSN to support a specific MBMS service.

FIG. 1 ("MBMS Architecture") of TR23846 is reproduced below:
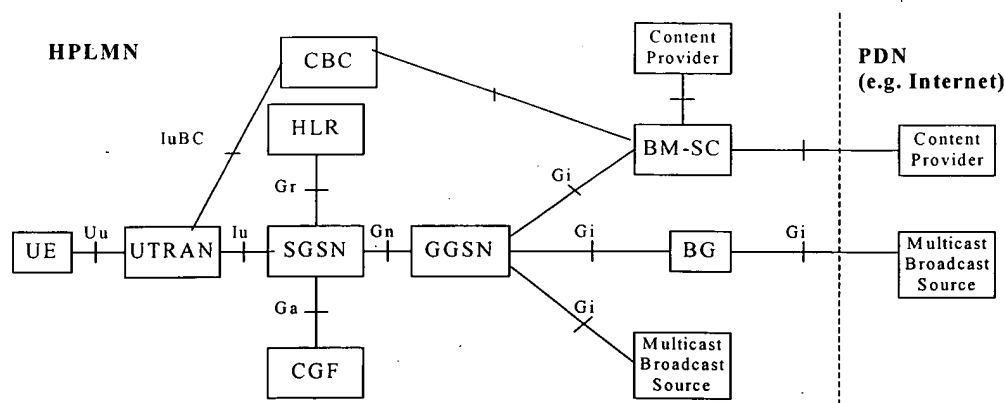
TR23846, FIG. 1, section 6.1. Putting this in the context of FIG. 1 of TR23846, there may be **multiple** Iu GTP tunnels between the SGSN and the RNCs (not shown) in the UTRAN to support a specific MBMS service. There will, however, be only a **single** Gn GTP tunnel between the GGSN and the SGSN to support the specific MBMS service. In other words, in TR23846, there could be one, two, or hundred Iu GTP tunnels, but only a single Gn GTP tunnel to support a specific MBMS service.

Nothing in TR23846 states anything other than what has just been described. TR23846 states the following:

> In the MBMS architecture the SGSN performs user individual service control functions and the SGSN concentrates all individual users of the same MBMS service into a single MBMS service. The SGSN maintains a single connection with the source of the MBMS data. **The SGSN duplicates the packets received from the GGSN for forwarding to each RNC involved in provision of a specific MBMS service.**

> The GGSN terminates the MBMS GTP tunnels from the SGSN and links these tunnels via IP multicast with the MBMS data source. The GGSN duplicates the packets received from the MBMS data source for forwarding **to each SGSN to which a GTP tunnel is established for a specific MBMS service**.

TR23846, section 6.1 (emphasis added).

Furthermore, see the following:

> Besides the user individual service control functions comparable to the functions already provided by an SGSN or GGSN there are some additional functions required for MBMS, mainly the specific data transport. It is assumed, that the SGSN performs the user individual service control, generates the charging data per user and establishes the RABs when MBMS data is to transfer. **The SGSN concentrates all user individual services into one MBMS service for each specific MBMS service. *This includes the establishment of a number of RABs to transfer MBMS data to the radio network entities of the related service area* and *it includes a single connection between the SGSN and the GGSN for each individual MBMS service*. The SGSN duplicates the data received from the GGSN for each RAB established for the service.** Similarly, the GGSN duplicates data

received from the MBMS source for each GTP tunnel related to the same MBMS service.

TR23846, section 6.1.4 (emphasis added). In other words, "[t]he SGSN *concentrates* all user individual services into **one** MBMS service for each specific MBMS service", and there is a "**single** connection between the SGSN and the GGSN for each individual MBMS service" (emphasis added). In other words, a single connection between the SGSN and the GGSN for a single MBMS service, and the SGSN concentrates all user individual services into this single connection. However, between the SGSN and the radio network entities (e.g., RNCs), there will typically be **multiple** radio network entities and the SGSN duplicates the data in order send to the **multiple** RABs/radio network entities (e.g., RNCs).

Because there is only a "**single** connection between the SGSN and the GGSN for each individual MBMS service" in TR23846, there is no need for the GGSN to be provided = the number of connections made by the SGSN to the **multiple** RABs/radio network entities (e.g., RNCs).

Turning to claim 1, this claim recites the following:

A method, comprising:

providing to a first switching node information indicating a number of connections required between a second switching node and a plurality of terminal devices; and

determining based on said provided information a number of connections to be set up between said first switching node and said second switching node of a data network to set up a broadcast or multicast transmission for a broadcast or multicast service to the plurality of terminal devices.

The Examiner appears to liken the GGSN in TR23846 to a "first switching network" and the SGSN in TR23846 to the "second switching node". The Examiner states that TR23846 discloses all elements of this claim, but it is respectfully submitted that this is incorrect.

TR23846 does not perform "providing to a first switching node [GGSN according to the Examiner] information indicating a number of connections required between a second switching node [SSGN according to the Examiner] and a plurality of terminal devices" because there is a "**single** connection between the SGSN and the GGSN for each individual MBMS service" (TR23846, section 6.1.4 (emphasis added)). The GGSN in TR23846 has no reason to be informed of the number of connections between the SGSN and the terminal devices, because this number is immaterial: the number could be one, two, ten, one hundred, or a thousand, yet there is only a "**single** connection between the SGSN and the GGSN for each individual MBMS service" (TR23846, section 6.1.4 (emphasis added)).

The subject matter of "determining based on said provided information a number of connections to be set up between said first switching node and said second switching node of a data network to set up a broadcast or multicast transmission for a broadcast or multicast service to the plurality of terminal devices" is also not disclosed by TR23846. This is true because in TR23846, there is no reason to "determine[e] based on said provided information a number of connections to be set up between said first switching node [GGSN according to the Examiner] and said second switching node [SSGN according to the Examiner] of a data network to set up a broadcast or multicast transmission for a broadcast or multicast service to the plurality of terminal devices", because there is always only a "**single** connection between the SGSN and the GGSN for each individual MBMS service" (TR23846, section 6.1.4 (emphasis added)) in TR23846.

The Examiner points to section 7.4, step 6, and section 7.5, step 11 of TR23846, arguing that because a new MBMS connection is created at these points, then "a number of connections have been determined":

    a.   With regards to determining "a number of connections", if one connection

is used between the GGSN and SGSN, which was established as a result of a

SGSN request, then a number of connections have been determined. Setting up

one connection may appear trivial however is required as shown in section 7.4

step 6 and section 7.5 step 11, where TR23846 discusses first checking if there

is an existing MBMS connection and, if not creating a connection, therefore

determining that a connection is required, which is made between the GGSN and

the SGSN. Furthermore, as disclosed in TR23846 section 6.1.4, the SGSN

Outstanding Office Action, page 3. What these sections state is the following:

> The new SGSN validates the UE's presence. If due to roaming restrictions the UE is not allowed to be attached in the SGSN, or if subscription checking fails, the new SGSN rejects the routeing area update with an appropriate cause. If all checks are successful, the new SGSN constructs MM, PDP **and MBMS** contexts for the UE. **The new SGSN checks each individual MBMS service indicated by the MBMS contexts of the UE. If it is the first UE with this specific MBMS multicast service on this SGSN the SGSN requests the creation of an MBMS context on the GGSN and the establishment of a GTP tunnel between the SGSN and the GGSN.**

TR23846, section 7.4, step 6 (emphasis in original).

> Upon receipt of the Relocation Detect message, the CN may switch the user plane from source RNC to target SRNC. If the SRNS Relocation is an inter SGSN SRNS relocation, the new SGSN sends Update PDP Context Request messages to the GGSNs concerned. The GGSNs update their PDP context fields and return an Update PDP Context Response. **If the SRNS Relocation is an inter SGSN SRNS relocation, the new SGSN checks each individual MBMS service indicated by the MBMS contexts of the UE. If it is the first UE with this specific MBMS multicast service on this SGSN the SGSN requests the creation of an MBMS context on the GGSN and the establishment of a GTP tunnel between the SGSN and the GGSN.**

TR23846, section 7.5, step 11 (emphasis in original).

All these sections are stating, however, is that if there is no MBMS service on the current SGSN, an MBMS context is established between the GGSN and the SGSN via a **single** GTP tunnel between the SGSN and the GGSN. There is simply no disclosure that the SGSN provides to the GGSN information indicating a number of connections between the SGSN and the terminal device(s). And TR23846 teaches away from this, as there is *always* only a "**single** connection between the SGSN and the GGSN for each individual MBMS service" (TR23846, section 6.1.4 (emphasis added)) in TR23846. Thus, the GGSN in TR23846 has no need of "information indicating a number of connections required between a second switching node [SGSN according to the Examiner] and a plurality of terminal devices" as recited in claim 1.

For at least these reasons, TR23846 does not disclose either "providing to a first switching node information indicating a number of connections required between a second switching node and a plurality of terminal devices" or "determining based on said provided information a number of connections to be set up between said first switching node and said second switching node of a data network to set up a broadcast or multicast transmission for a broadcast or multicast service to the plurality of terminal devices". Claim 1 is patentable over TR23846.

Because claim 1 is patentable, independent claim 12 is also patentable over TR23846 for similar reasoning. Because independent claims 1 and 12 are patentable, dependent claims 2-9 and 13-15 are also patentable.

Rejections under 35 U.S.C. §103(a)

The Examiner rejected claims 10 and 16 as being obvious over TR23846 in view of Leroy (EP 1071296). The Examiner rejected claims 11, 17, and 20 as being obvious over TR23846 in view of Mizell (U.S. Patent no. 7,289,462).

With regard to claims 10 and 11, because independent claim 1 is patentable, claims 10 and 11 are also patentable for at least the reasons given above. Furthermore,

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neither Leroy nor Mizell cure the defects of TR23846. Additionally, Applicant does not acquiesce to the Examiner's argument that these references can be combined with TR23846, but it is not necessary at this time to address this. Therefore, claims 10 and 11 are patentable over TR23846, alone or in combination with one or both of Leroy or Mizell.

The arguments above with respect to claim 1 also apply equally as well to independent claims 16 and 17. For instance, claim 16 recites the subject matter of "access a memory table in order to derive information indicating a number of connections required between a switching node and a plurality of terminal devices" and "determine based on said derived information a number of connections to be set up to said switching node to set up a broadcast or multicast transmission for one multicast/broadcast multimedia service to said plurality of terminal devices".

As described above, there is a "**single** connection between the SGSN and the GGSN for each individual MBMS service" (emphasis added). However, between the SGSN and the radio network entities (e.g., RNCs), there will typically be **multiple** radio network entities and the SGSN duplicates the data in order send to the **multiple** RABs/radio network entities (e.g., RNCs). Because there is only a "**single** connection between the SGSN and the GGSN for each individual MBMS service" in TR23846, there is no need for the GGSN to determine (e.g., by accessing a memory table) the number of connections made by the SGSN to the **multiple** RABs/radio network entities (e.g., RNCs).

TR23846 does not perform the subject matter in claim 16 of "access a memory table in order to derive information indicating a number of connections required between a switching node and a plurality of terminal devices" or "determine based on said derived information a number of connections to be set up to said switching node to set up a broadcast or multicast transmission for one multicast/broadcast multimedia service to said plurality of terminal devices", because there is a "**single** connection between the SGSN and the GGSN for each individual MBMS service" (TR23846, section 6.1.4 (emphasis added)). The GGSN in TR23846 has no reason to determine the number of connections between the SGSN and

the terminal devices, because this number is immaterial: the number could be one, two, ten, one hundred, or a thousand, yet there is only a "**single** connection between the SGSN and the GGSN for each individual MBMS service" (TR23846, section 6.1.4 (emphasis added)).

TR23846 does not perform the subject matter in claim 17 of "query, using a multicast identification or a multicast area identification, from an address server information indicating a number of connections required between said a switching node and a plurality of terminal devices" and "determine based on said queried information a number of connections to be set up to said switching node to set up a broadcast or multicast transmission for one multicast/broadcast multimedia service to said plurality of terminal devices", because there is a "**single** connection between the SGSN and the GGSN for each individual MBMS service" (TR23846, section 6.1.4 (emphasis added)). The GGSN in TR23846 has no reason to determine the number of connections between the SGSN and the terminal devices, because this number is immaterial: the number could be one, two, ten, one hundred, or a thousand, yet there is only a "**single** connection between the SGSN and the GGSN for each individual MBMS service" (TR23846, section 6.1.4 (emphasis added)).

Furthermore, neither Leroy nor Mizell cure the defects of TR23846. Additionally, Applicant does not acquiesce to the Examiner's argument that these references can be combined with TR23846, but it is not necessary at this time to address this.

Therefore, the subject matter of claims 16 and 17 are not disclosed by TR23846 or TR23846 in combination with one or both of Leroy or Mizell, and claims 16 and 17 are patentable.

Conclusion

Based on the foregoing arguments, it should be apparent that claims 1-20 are thus allowable over the reference(s) cited by the Examiner, and the Examiner is respectfully requested to reconsider and remove the rejections. The Examiner is invited to call the undersigned attorney for any issues.

S.N. 10/511,106
Art Unit: 2617

Respectfully submitted:

_____   24 Feb 2010
Robert J. Mauri   Date
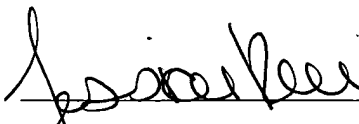Reg. No.: 41,180

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